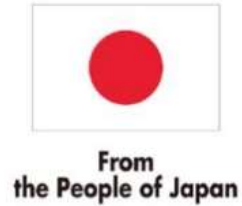


First meeting of the CAREC Skills Development Working Group

February 29 – March 1, 2024
Tashkent, Uzbekistan



"Sustainable Agriculture: Skills for Renewable Energy Integration"

D.t.s., professor Nurali Yusifbayli

**AZERBAIJAN
TECHNICAL UNIVERSITY**

Presentation Outline

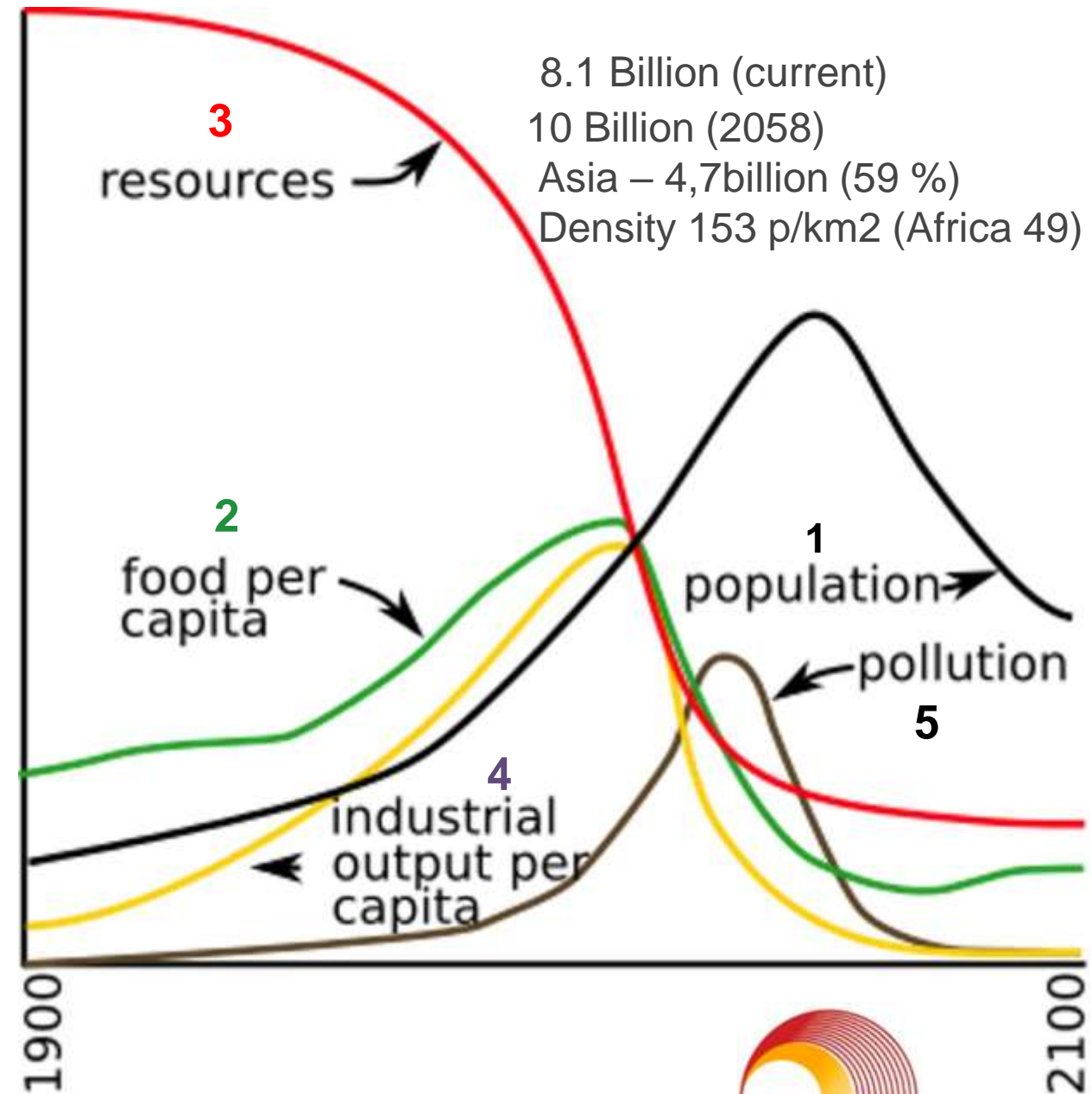
- ✓ **Brief information about AzTU**
- ✓ **The role of the university in solving the problems of agriculture and food security of the country**
- ✓ **Bilateral relations with foreign universities and centers**
- ✓ **Harnessing Renewable Energy Through Skill Development**



1972 'Limits to Growth'

How long can humanity keep growing and consuming at its current rate?

Using computer modeling, they came up with an ominous answer: "If the **present growth trends in world population, industrialization, pollution, food production, and resource depletion** continue unchanged, the limits to growth on this planet will be reached sometime within the next one hundred years.



Brief information about AzTU

Public university (1887)



Up to
12000 students
(300 international
students)



600 academic staff
350 professor



8 faculties:

- 36 Bachelor's degree,
- 37 Master's degree,
- 59 PhD programs.
- 2 colleges

Language of instruction:



Brief information about AzTU

Faculties

- 1 **Transportation and Logistics**
- 2 **Electric Power Engineering and Automatics**
- 3 **Metallurgy and Materials Engineering**
- 4 **Mechanical Engineering and Robotics**
- 5 **Information and Communication Technologies**
- 6 **Special Equipment and Technology**
- 7 **Economics and Management**
- 8 **German Engineering**



Brief information about AzTU

Research Institutes

- 1 Institute of Industrial Design and Technology
- 2 Institute of Defense Industry
- 3 Institute of Cyber Security Institute of
- 4 Artificial Intelligence
- 5 Institute of Logistics and Transport
- 6 Institute for Energy Research
- 7 Institute for Sustainable Development
- 8 Institute of Foreign Languages Technologies



Brief information about AzTU

Main research areas

- ❑ Data Science and Analytics, Artificial Intelligence and Machine Learning
- ❑ Information Technology, Software Development and Cybersecurity
- ❑ Sustainable Energy, Mobility and Environment Technologies
- ❑ Advanced Manufacturing, Materials
- ❑ Science and Nanotechnology
- ❑ Robotics, Automation and Industrial IoT



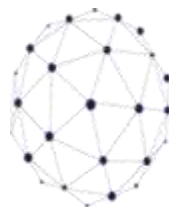
Membership to associations

- **1998** – Member of the Black Sea Universities Network
- **2002** – Member of the Association of State Universities of the Caspian Sea Region Countries
- **2013** – Member of the Association of Technical Universities of the CIS Countries
- **2022** – Member of CDIO Initiative Universities



European Union Grant Projects

Total implemented projects: 13



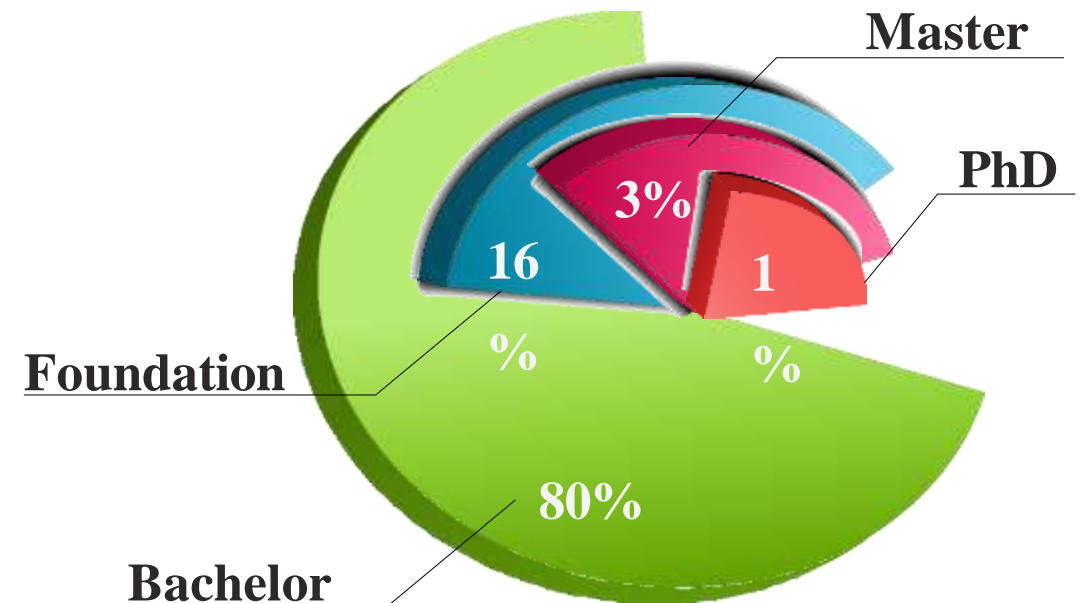
E|C|A|R
ESTABLISHMENT OF RECTORS
CONFERENCE IN AZERBAIJAN



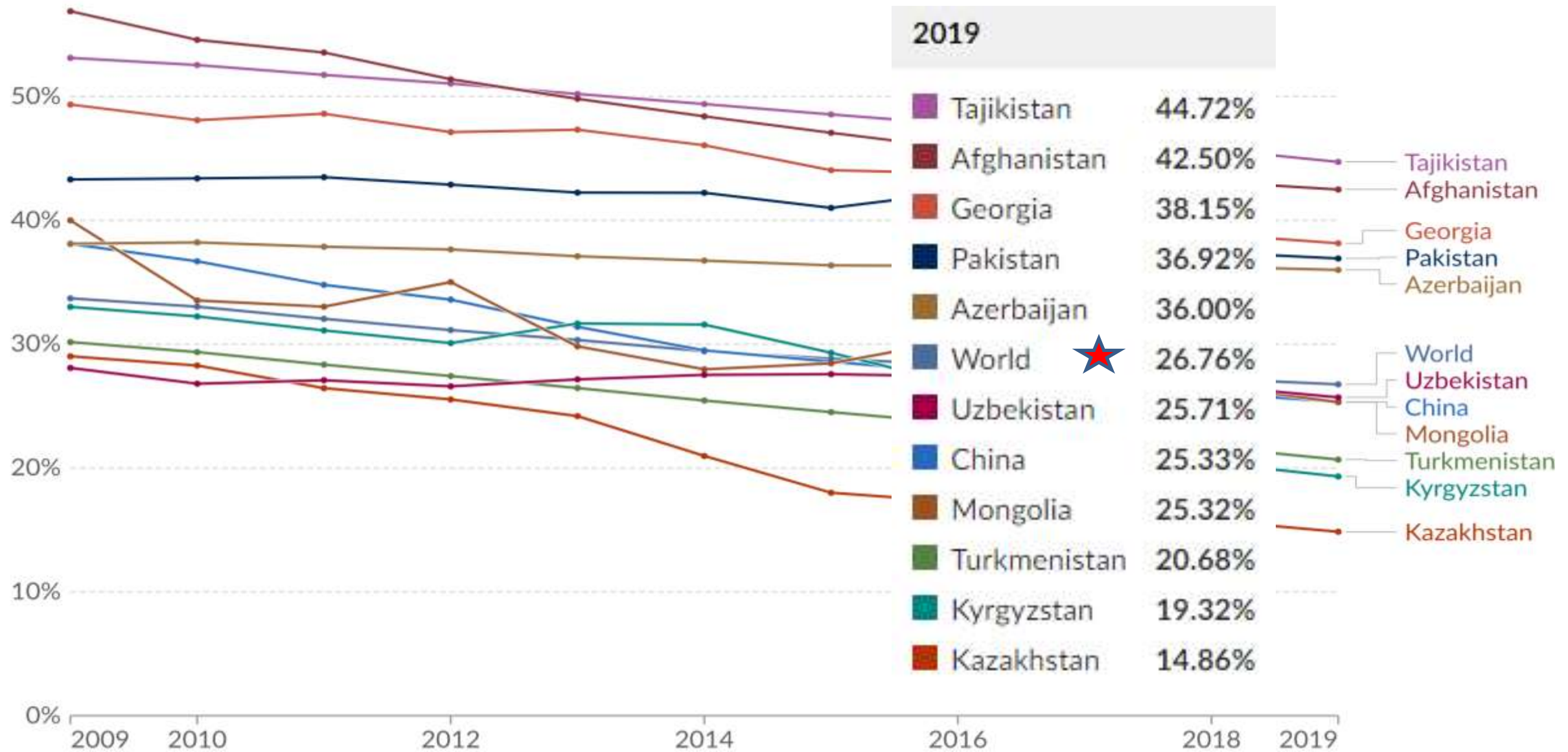
International students Mainly Represented from following countries

Up to 300 international students from 28 countries

Mainly represented from following countries:



Share of the labor force employed in agriculture



Data source: Our World in Data based on International Labor Organization

The role of the university in solving the problems of agriculture and food security of the country



State documents adopted in recent years in the field of agriculture and food security

- ❑ **"Food security program of the Republic of Azerbaijan"** covering the years 2001-2010 with Decree No. 640 dated March 2, 2001.
- ❑ **"State Program on the reliable supply of food products to the population in the Republic of Azerbaijan in 2008-2015"**. Order No. 3004 dated August 25, 2008
- ❑ **"Strategic Roadmap for the production and processing of agricultural products in the Republic of Azerbaijan"** was approved by Decree No. 1138 dated December 6, 2016
- ❑ **The STATE PROGRAM and action plan for ensuring food safety in the Republic of Azerbaijan for 2019-2025**
- ❑ as well as, as a continuation of these reforms, targeted programs, concepts and other documents were adopted.

The main role of universities in Azerbaijan in ensuring agricultural food security is confirmed in the State Program:

10.3.6. **Assessment of the need for training of personnel** operating in the field of food safety, **implementation of measures related to improvement of knowledge and skills**

10.3.8. **Establishing contact and partnership mechanism with specialized educational institutions** in the field of food safety

The role of the university in solving the problems of agriculture and food security of the country



What disciplines your university is teaching in the field of agriculture, climate change, food security and water scarcity ?

Name of disciplines: “Life safety engineering”, “Environmental protection and efficient use of natural resources”, “Environmental engineering”.(since 2020) “Protection and processing of natural resources”, “Ecology of transport”. “Recycling and reuse of wastewater”, “Wastewater treatment”, “Amelioration, reclamation and environmental fundamentals”, “Integrated water resources management”, “Climate change and global warming”, “Ecological assessment and design principles”, “Modeling of environmental systems”, “Study of natural and waste waters using laboratory methods”. “Machines and equipment for the food industry”, «Renewable energy technologies»

(from 2021) training at the undergraduate level in the specialty “**Food Engineering**”.

(from 2024) training graduates in the specialty “**Food Product Engineering**”

Annul enrolment: 250 students

Annual graduates’ output: 230-240 students



Which countries' universities do you cooperate with and in what areas?

Cooperation agreements have been signed with more than 110 universities from 20 countries



Türkiye

- Istanbul Technical University
- Yıldız Technical University
- Gazi University
- Bogaziçi University
- Ankara University
- Middle East Technical University



Bulgaria

- Gabrovo Technical University
- Varna Technical University



Serbia

- University of Novi Sad



Poland

- Silesian University of Technology



Hungary

- University of Debrecen



Ukraine

- Kharkiv National University of Radio Electronics
- Ukraine State University of Railway Transport
- State Infrastructure and Technology University
- Ukraine National Aviation University



Georgia

- Georgian Technical University
- Ivane Javakhishvili Tbilisi State University



Germany

- Brandenburg University of Technology
- Ulm University of Applied Sciences



Lithuania

- Kaunas University of Applied Sciences



Kyrgyzstan

- Kyrgyz State Technical University



Italy

- Sapienza University of Rome
- University of Pisa



Kazakhstan

- Yessenov University
- Atyrau University of Oil and Gas



Romania

- Technical University of Cluj-Napoca University Of Pitesti
- Politehnica University of Timișoara



Latvia

- Riga Technical University
- Baltic International Academy



Moldova

- Technical University of Moldova



Uzbekistan

- Tashkent State Transport University

Double diploma programs

Ankara University (Türkiye)

- Computer engineering - Bachelor level

Gazi University (Türkiye)

- Electric and electronics engineering - Bachelor level

Ukrainian State University of Railway Transport (Ukraine)

- Railcars and railcar facilities - Master level

Brandenburg University of Technology (Germany)

- Computer engineering - Bachelor level

Kharkiv National Radioelectronics University (Ukraine):

- Computer systems and networks - Master level
- System programming specialties – Master level



With which participating countries, and in which areas would you like to exchange experience and sign a cooperation agreement?

Countries and universities	Areas for cooperation
<ul style="list-style-type: none"> • People's Republic of China (Peking University; Tsinghua University; Zhejiang University; Fudan University; University of Science and Technology of China;) 	<ul style="list-style-type: none"> • Information Technologies; Electric and electronic engineering; Material sciences; Metallurgy; Energy; Environmental management
<ul style="list-style-type: none"> • Pakistan (Pakistan Institute of Engineering and Applied Sciences (PIEAS); COMSATS University; University of the Punjab) 	<ul style="list-style-type: none"> • Information Technologies; Electric and electronic engineering; Mechanical engineering; Chemical engineering; Material sciences; Metallurgy; Aerospace Engineering; Economics and management
<ul style="list-style-type: none"> • Kazakhstan (Al-Farabi Kazakh National University; L.N. Gumilyov Eurasian National University (ENU); Satbayev University; D. Serikbayev East Kazakhstan Technical University) 	<ul style="list-style-type: none"> • Information Technologies; Radio-electronics and Telecommunications; Chemical engineering; Mechanical engineering; Material sciences; Metallurgy; Energy; Transportation and logistics; Economics and management
<ul style="list-style-type: none"> • Uzbekistan (Tashkent State Technical University; Tashkent State Transport University) 	<ul style="list-style-type: none"> • Information Technologies; Energy; Material sciences; Transportation and logistics; Environmental studies; Economics
<ul style="list-style-type: none"> • Kyrgyz Republic (Kyrgyz-Turkish Manas University; Kyrgyz State Technical University) 	<ul style="list-style-type: none"> • Information Technologies; Energy; Material sciences; Electronics; Transport

What kind of support you need to enhance the curriculum, exchange programs, student and faculty mobility, and strengthen the research?

- ✓ **Research Grants and Resources:**
- ✓ **Curriculum development**
- ✓ **International Collaboration and Partnerships:**
- ✓ **Infrastructure Development:**
- ✓ **Faculty Development:**
- ✓ **Mobility Programs:**
- ✓ **Technology Integration:**
- ✓ **Government Policies:**
- ✓ **Community Engagement:**
- ✓ **Capacity Building:**



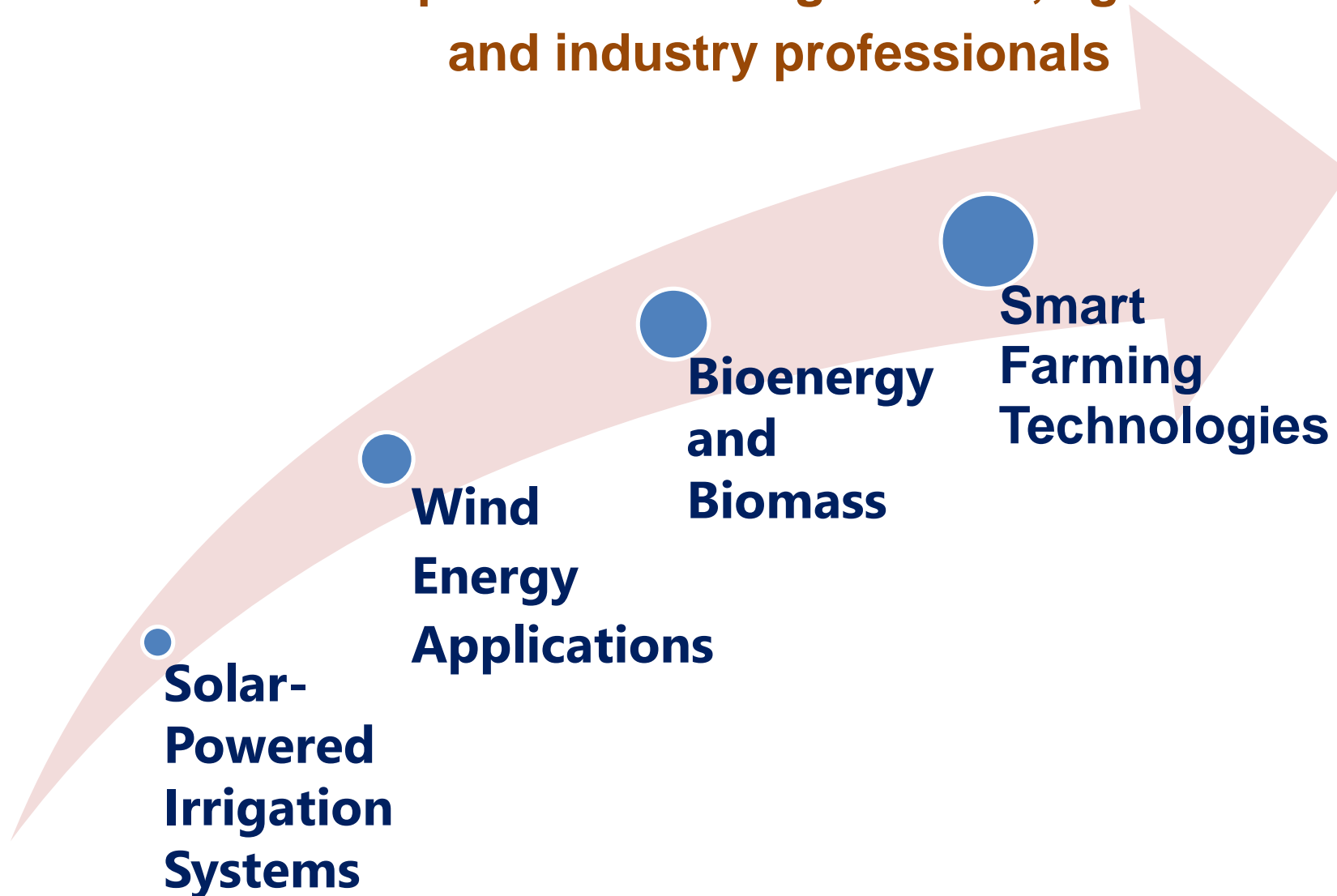
Talent is everywhere,
opportunity is not.
We are all losing out
because of this.

2020 R&D spending as
in % of a share of GDP

China	2.4%
European Union (27)	2.3%
Georgia	0.3%
Azerbaijan	0.2%
Uzbekistan	0.1%
Mongolia	0.1%
Kazakhstan	0.1%
Kyrgyzstan	<0.1%
Tajikistan	<0.1%

Harnessing Renewable Energy Through Skill Development"

**New skills and capabilities among farmers, agricultural workers,
and industry professionals**



- **Environmental Sustainability**
- **Cost Savings and Economic Viability**
- **Community Resilience**

Thank you

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-  Afghanistan
-  Azerbaijan
-  China
-  Georgia
-  Kazakhstan
-  Kyrgyz Republic
-  Mongolia
-  Pakistan
-  Tajikistan
-  Turkmenistan
-  Uzbekistan